

MAJOR HAEMORRHAGE

MODULE: CRITICAL INCIDENTS

TARGET: ALL ANAESTHETISTS

BACKGROUND:

The risk of major haemorrhage is a risk that faces numerous groups of patients that require anaesthetic intervention including obstetrics, trauma and orthopaedics, neuro-, vascular, general, urological and gynaecological surgery. Definitions of major haemorrhage vary, but have included the need for 1-1.5 blood volume transfusion within a 24 hour period. These patients have a high mortality. Fifty percent of deaths in the first 24 hours after major trauma are due to massive haemorrhage, as are 80% of deaths on the table in these patients. Major haemorrhage is the sixth most common cause of maternal haemorrhage in the most recent triennium CMACE Saving Mother's Lives report (2006-2008).

Management of these patients requires strong leadership and team management to co-ordinate the various services required in adequately resuscitating these patients. The risk of errors may increase, particularly when large volumes of blood products are being transfused.

(NB: This scenario is designed to be utilised in tandem with BL_CRIT_21 Blood Transfusion Reaction, as the initial management steps required in managing a massive bleed in an anaesthetised patient.)

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_10	<p>In respect of airway management:</p> <ul style="list-style-type: none"> • Demonstrates optimal patient position for airway management • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates hand ventilation with bag and mask • Able to insert and confirm placement of a Laryngeal Mask Airway • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation techniques and confirms correct tracheal tube placement • Demonstrates proper use of bougies • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer • Correctly conducts RSI sequence <p>Correctly demonstrates the technique of cricoid pressure</p>
IO_BS_07	Demonstrates role as team player and when appropriate leader in the intra-operative environment
IO_BS_08	Communicates with the theatre team in a clear unambiguous style
IO_BS_09	Able to respond in a timely and appropriate manner to events that may affect the safety of patients [e.g. hypotension, massive haemorrhage] [S]
CI_BK_01	Cardiac and/or respiratory arrest
CI_BK_02	Unexpected fall in SpO ₂ with or without cyanosis
CI_BK_03	Unexpected increase in peak airway pressure
CI_BK_08	Unexpected hypotension
CI_BK_10	Sinus tachycardia
CI_BK_19	Bronchospasm
CI_BK_22	Adverse drug reactions
CI_BK_23	Anaphylaxis
CI_BK_24	Transfusion reactions, transfusion of mis-matched blood or blood products
CI_BS_01	Demonstrates good non-technical skills such as: [effective communication, team-working, leadership, decision-making and maintenance of high situation awareness]
CI_BS_02	Demonstrates the ability to recognise early a deteriorating situation by careful monitoring
CI_BS_03	Demonstrates the ability to respond appropriately to each incident listed above
CI_BS_04	Shows how to initiate management of each incident listed above
CI_BS_05	Demonstrates ability to recognise when a crisis is occurring
CI_BS_06	Demonstrates how to obtain the attention of others and obtain appropriate help when a crisis is occurring
4.3	Administers blood and blood products safely
CI_IS_01	Demonstrates leadership in resuscitation room/simulation when practicing response protocols with other healthcare professionals
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols with other healthcare professionals
GU_IS_03	Demonstrates the ability to manage the effects of sudden major blood loss effectively

INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Safe commencement of blood product transfusion.
- Knowledge of local protocols for major haemorrhage management
- Appreciation of the multidisciplinary approach to management of this crisis

SCENE INFORMATION:

- Location: Anaesthetic Room / Theatre

EQUIPMENT & CONSUMABLES

Female Manikin – On trolley/bed
 Checked anaesthetic machine with circle circuit
 Stocked Airway trolley

- Laryngoscopes (2 x Macintosh)
- ET Tubes (Various Sizes)
- OP, NP and Advanced Supraglottic airways (iGels, LMAs)

Anaesthetic drugs drawn up
 Simulated blood for transfusion

PERSONS REQUIRED

Anaesthetic/ACCS junior trainee
 Anaesthetic assistant
 Anaesthetic Senior Trainee
 Surgeon – aggressive and pushing to start surgery
 Scrub nurse

PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

Laura Westall is a 28 year old woman undergoing a laparoscopic salpingectomy for suspected ectopic pregnancy. She has a positive pregnancy test, and increasing abdominal pain. She has become mildly pyrexial and tachycardic (110bpm) in the last few hours. She has a mildly elevated white cell count, and otherwise normal bloods.

She has suffered from fairly frequent urinary tract infections and other minor infections, but has had no serious illnesses. There are no allergies of note.

'VOICE OF MANIKIN' BRIEFING:

You are anxious and in quite a lot of lower abdominal pain. The surgeons have told you that you probably have an ectopic pregnancy and that they need to investigate with a diagnostic laparoscopy.

You are a previously fit and well 28 year old. You have suffered from frequent urinary tract infections and sinusitis, but never any serious infections. No allergies. Last ate 2 hours ago.

OTHER IN-SCENARIO PERSONNEL BRIEFING:Anaesthetic Assistant:

Assist the anaesthetist in inducing the patient and 'transferring' the patient to theatre. The patient is hypotensive post-induction which is only transiently responsive to fluids and vasopressors.

At some stage the anaesthetist should ask for blood to transfuse the patient – If this does not happen, then you should prompt the anaesthetist after they have obtained a blood gas, for example: 'There are 2 units of cross-matched blood in the fridge. Do you want me to get them?'

Voice of Telephone Help:

Consultant anaesthetist will arrive in 20 mins.

Blood bank:

If the participant calls blood bank: they will require patient details, they will release red cells, but FFP and other clotting products will require discussion with the haematologist unless the participant activates the major haemorrhage protocol. Blood bank suggests sending further samples for FBC, clotting and fibrinogen levels.

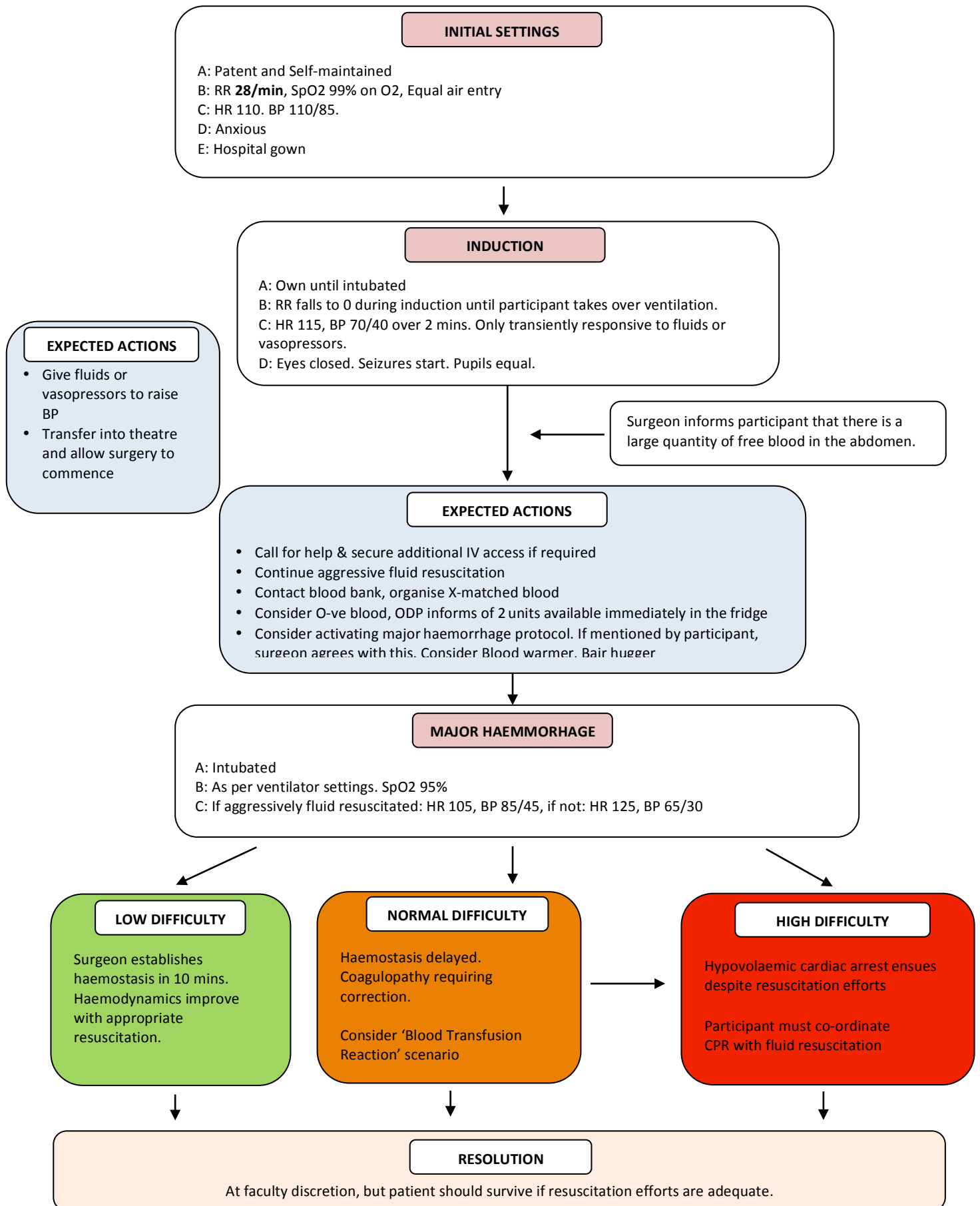
If the blood transfusion reaction occurs in this scenario (see also BL_CRIT_21 Blood Transfusion Reaction), and if the participant calls blood bank for advice, they are advised to keep the bag of blood under suspicion, and take 2 group and save samples from the patient, and label the samples with 'blood transfusion reaction'.

After the blood transfusion reaction, any further blood they provide will be red cells washed in saline.

Haematologist:

Will need patient details including weight, and will advise regarding the need for further clotting products: 2 packs of cryoprecipitate if fibrinogen is less than 100mg/dl, and a pool of platelets if the count is less than 50.

CONDUCT OF SCENARIO



ANAESTHETIC RECORD SHEET

PATIENT DETAILS / ADDRESSOGRAPH
Hospital No. _____

SURNAME: **Laura Westall**
(Block Letters)
FORENAMES: _____

Address: **28 years old**
Ward/Hosp: _____

DOB: _____ Sex: M / F

Royal Berkshire

NHS Foundation Trust

Procedure(s) proposed:
Laparoscopic salpingectomy

CEPOD CLASS: ELECTIVE / SCHEDULED / URGENT / EMERGENCY

Anaesthetist's preoperative assessment by

Name: _____	Grade: <input type="checkbox"/> Cons <input type="checkbox"/> AS <input type="checkbox"/> SG <input type="checkbox"/> Trainee _____
Date: _____	Signature _____

<p>Anaes / Surg history:</p> <p>Previous ERPC – GA OK</p> <p>Medical history:</p> <p>Frequent UTIs and sinus related infections</p>	<p>O/E</p> <p>Nil of note</p> <p style="text-align: center;">Airway Assessment</p> <p>Mouth Opening: MP Score: 1 2 3 4</p> <p>Jaw: Neck: MP1. Good neck and jaw ROM</p> <p style="text-align: center;">TEETH</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td> </td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> <tr><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td> </td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table> <p>X = missing L = loose B = bridge C = caps / crowns D = damaged</p>	8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8	8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8	<p>ASA</p> <p>BP: _____</p> <p>HR: _____</p> <p>Temp: _____</p> <p>Weight: _____</p> <p>Height: _____</p> <p>BMI: _____</p> <p>Smoke: _____</p> <p>Alcohol: _____</p> <p>Apfel Score _____</p>
8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8																				
8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8																				
<p>V^r _____</p> <p>NBM since Solids: 2 hours ago Pregnancy: Ve+ Clear Fluids: _____ Lactation: _____</p>																																				

Relevant Medication:	ALLERGIES
Nil	Nil Known

Investigations	<input type="checkbox"/> Haematology FBC Hb 10 Sickle: _____	<input type="checkbox"/> Biochemistry U & E NAD Blood Sugar: _____	<input type="checkbox"/> Coag. INR 1.0 <input type="checkbox"/> Gp. & Save <input type="checkbox"/> X - Match	<input type="checkbox"/> ECG <input type="checkbox"/> X - Ray	Other: Pelvis USS: - Cystic collection on right adnexae ?Ectopic
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CONSENT: GA Sedation Epidural Spinal Regional Suppository
 PCA EPCA Other

Notes / Discussion / Technique proposed:

Anaesthetic Information leaflet received by patient

For attention of ward staff: (further investigations, fasting, continue/omit current medication, etc.)

DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

Technical:

- Management of seizures in adults.
- Emergency induction in the potentially brain-injured patient
- Physiology of intracranial pressure – and limiting surges in ICP
- Principles of intra-hospital transfer

Non-technical:

- Situation awareness
- Prioritisation
- Leadership
- Team working and task management

DEBRIEFING RESOURCES

1. Local Major Haemorrhage Protocols – Each hospital should have one. If they don't, consider writing one with the haematology department.
2. AAGBI Safety Guideline 2010. Blood Transfusion and the Anaesthetist: Management of Major Haemorrhage
http://www.aagbi.org/sites/default/files/massive_haemorrhage_2010_0.pdf
3. AAGBI Safety Guideline 2005. Blood Transfusion and the Anaesthetist: Blood Component Therapy <http://www.aagbi.org/sites/default/files/bloodtransfusion06.pdf>
4. AAGBI Safety Guideline 2009. Blood Transfusion and the Anaesthetist: Intra-operative cell salvage [http://www.aagbi.org/sites/default/files/cell%20_salvage_2009_amended.pdf](http://www.aagbi.org/sites/default/files/cell%20salvage_2009_amended.pdf)
5. AAGBI Safety Guideline 2008. Blood Transfusion and the Anaesthetist: Red cell Transfusion 2 http://www.aagbi.org/sites/default/files/red_cell_08.pdf

INFORMATION FOR PARTICIPANTS

KEY POINTS:

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http://www.aagbi.org/sites/default/files/massive_haemorrhage_2010_0.pdf
3. AAGBI Safety Guideline 2005. Blood Transfusion and the Anaesthetist: Blood Component Therapy <http://www.aagbi.org/sites/default/files/bloodtransfusion06.pdf>
4. AAGBI Safety Guideline 2009. Blood Transfusion and the Anaesthetist: Intra-operative cell salvage [http://www.aagbi.org/sites/default/files/cell%20_salvage_2009_amended.pdf](http://www.aagbi.org/sites/default/files/cell%20salvage_2009_amended.pdf)
5. AAGBI Safety Guideline 2008. Blood Transfusion and the Anaesthetist: Red cell Transfusion 2 http://www.aagbi.org/sites/default/files/red_cell_08.pdf

PARTICIPANT REFLECTION:

What have you learnt from this experience? (Please try to list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?

PARTICIPANT FEEDBACK

Date of training session:.....

Profession and grade:.....

What role(s) did you play in the scenario? (Please tick)

Primary/Initial Participant

Secondary Participant (e.g. 'Call for Help' responder)

Other health care professional (e.g. nurse/ODP)

Other role (please specify):

Observer

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I found this scenario useful					
I understand more about the scenario subject					
I have more confidence to deal with this scenario					
The material covered was relevant to me					

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants?

(This is especially important if you have ticked anything in the disagree/strongly disagree box)



FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn't it go well?

How could the scenario be improved for future participants?